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of their branches. The dwarf trees of mountain tops have likewise a decidedly different appearance, so far as they have come within my observation, and do not particularly resemble the Japanese products.

I do not remember to have seen it suggested anywhere that the dwarf trees of Japan are essentially of seashore origin, but in view of the little natural forest on the coast of Vancouver, I think it very possible that this is a correct explanation.—CONWAY MACMILLAN, *University of Minnesota, Minneapolis.*

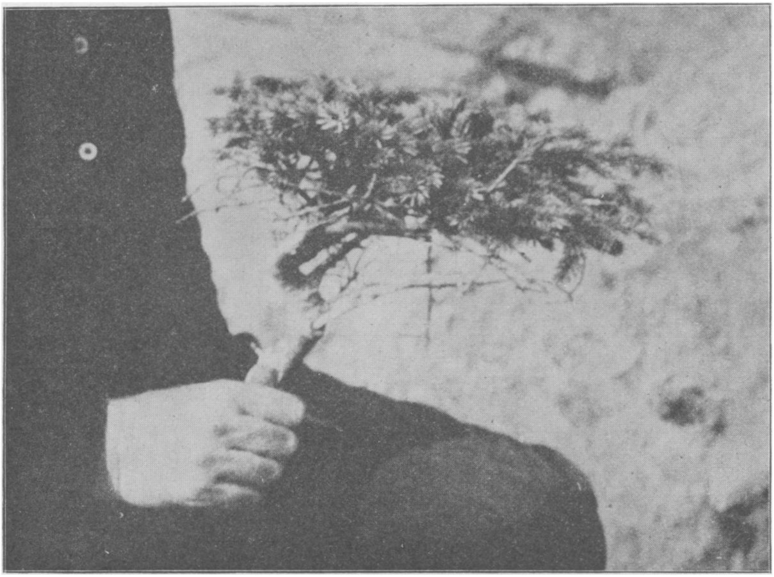

FIG. 3.

CELLOIDIN TECHNIQUE: A REPLY.

IN THE August number of the GAZETTE, Dr. CHARLES J. CHAMBERLAIN publishes a criticism of a recent contribution by Mr. A. B. PLOWMAN on the subject of celloidin imbedding. As the account of the method was written up by Mr. PLOWMAN at my suggestion, and the "Correction" of Dr. CHAMBERLAIN contains several misconceptions, I think it well to publish a short reply. Dr. CHAMBERLAIN is unable to find anything new in the method beyond the preliminary use of hydrofluoric acid. If so accomplished a technician takes the trouble to reperuse the article in question, he will discover, in the very careful removal of air from the tissues before imbedding, the numerous accurately graded solutions of celloidin (2, 4, 6, 8, etc., per cent.), the repeated heating and rapid cooling of the objects during the process of infiltration, the thickening of the final matrix by the addition of chips of celloidin and the use of heat (instead of the usual process of evaporation), the hardening by means of chloroform followed by STRASBURGER'S solution of equal parts of alcohol and glycerin, the method of attaching the objects to the microtome, etc., etc., features of greater or less novelty in celloidin technique. It is scarcely necessary to discuss the misconception on the part of Dr. CHAMBERLAIN, by which he supposes Mr. PLOWMAN to claim originality in the matter of using celloidin as an imbedding medium. The reference to previous incomplete accounts was perhaps unfortunate, but was due to the fact that Mr. C. H. MILLER, an assistant in the Anatomical Department of the University of Chicago had described imperfectly the celloidin method at present under discussion as derived from Prof. R. R. BENSLEY, a former colleague of the present writer. In his chapter on celloidin technique, Dr. CHAMBERLAIN too makes reference to his indebtedness to Mr. W. B. MAC CALLUM, a former student of the Ontario Agricultural College, an institution into which the present writer's celloidin method had certainly been introduced. The writer is glad to accept Dr. CHAMBERLAIN'S statement, in a letter to Mr. PLOWMAN, that he owes nothing to Dr. MAC CALLUM. The mention of possible prior publication arising out of the wide informal diffusion of the method was not introduced out of any desire to establish priority, but for the purpose of obviating just such well meant criticisms as that of Dr. CHAMBERLAIN. The excuse for publishing the method is the fact that it gives results which excel those obtained by any other process known to the writer.—E. C. JEFFREY, *Phanerogamic Laboratories of Harvard University.*

THE correction to which Professor JEFFREY refers in his reply was based upon the following data:

Celloidin in 2, 4, 6, 8, 10, and 12 per cent. solution is mentioned in LEE'S *Vade Mecum* (ed. 3, 1893, pp. 193–195). The series in multiples of two seems due to the fact that the SCHERING'S celloidin, which is most commonly used, comes in tablets accompanied by directions stating that a 2 per cent. solution may be made by adding to a tablet a sufficient quantity of ether-alcohol to make the whole weigh 2000^{gm}. For a 4 per cent. solution another tablet could be added, and so on. The chloroform method for hardening celloidin after infiltration was described by VIALLANES in 1883 (Rech. sur l'hist. et le dével. des insects, p. 129; also Revue scientifique **31**: 684–687.

1883). A mixture of equal parts of glycerin and alcohol was recommended by STRASBURGER (Das botanische Practicum 1884, p. 79) for facilitating the cutting of woody tissues. EYCLESHYMER (Amer. Naturalist **34**: 354–357. 1892, and Jour. Roy. Micr. Soc. **1892**: 563–565) describes a series of four grades of celloidin for infiltrating, chloroform for hardening, and a treatment with glycerin before cutting. In view of these facts, we do not doubt that others, who like ourselves have used STRASBURGER'S method for softening woody tissues, have continued to use the glycerin and alcohol mixture when dealing with material imbedded in celloidin.

Mr. PLOWMAN has certainly presented the subject in a very usable form, and in perfecting the application of fluoric acid he has made it possible to obtain better sections of refractory tissues. In my "correction" I intended merely to lodge an objection to the characterization of my account as a second-hand presentation of Dr. JEFFREY'S methods. A study of LEE'S *Vade Mecum* and the references there cited indicates that Dr. JEFFREY, like myself, is deeply indebted to previous investigators.—CHARLES J. CHAMBERLAIN.

I HAVE been permitted to read the proof of Dr. CHAMBERLAIN'S comment on my letter. Matters have now resolved themselves into a difference of opinion between Dr. CHAMBERLAIN and myself as to what constitutes novelty and improvement in celloidin technique. I am very willing to allow the case to rest on the practical value of the method published by Mr. PLOWMAN.—E. C. JEFFREY.

AN ABNORMAL AMBROSIA.

(WITH THREE FIGURES)

A PLANT of *Ambrosia artemisiaefolia* that had been run over by a wagon and badly injured bore both staminate and pistillate flowers in an abnormal condition. The young shoots bearing the flowers arose vertically from the prostrate and injured main stem.

The staminate flowers of this injured plant appeared larger than the normal. The heads were scattered, forming a loose raceme, and each contained fewer flowers than usual. In the center of the older flower heads there was a group of buds that appeared to be vegetative (*fig. 1*), while the younger heads contained vegetative buds only within the bracts enclosing the heads, the flowers having been entirely replaced. Instead of the sterile style the older staminate flowers bore vegetative buds in the center (*fig. 2*). The pollen of these flowers appears to have been arrested